DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-000359
Date Inspected: 09-Aug-2007

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 800
OSM Departure Time: 1730
Location: Shanghai, China

CWI Name: Huang Wei

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☐ Yes	☑ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☐ Yes	☐ No	☑ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
				Approved WPS:	☐ Yes	☐ No	☑ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

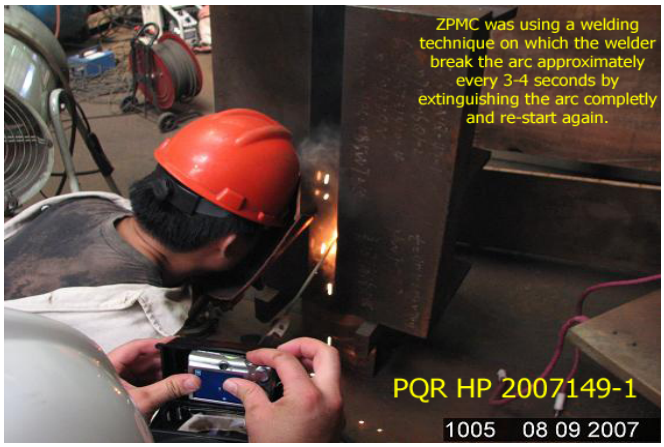
Bridge No: 34-0006
Component: N/A

Summary of Items Observed:

The CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the welding qualification testing pertinent for the welding qualification record (PQR) HP2007149-1 scheduled for this project. ZPMC, welder operator Zhu Haiping was observed by the QA Inspector performing welding operations following the preliminary welding procedure specification PWPS-B-T-3213 for the PQR identified as HP2007149-1. Base metal was designated as A-709 HPS 485W (Heat # 07101250N). ZPMC followed the production procedure WPS criteria (AWS D1.5-2002 section 5.13) using the Shielded Metal arc welding (SMAW) process in the vertical (3G) position with the 4.0 mm diameter electrode designated as E7018-1/AWS A5.1, brand name THJ506Fe-1. The QA Inspector verified dimensions for the test coupon, amperages, voltages, travel speeds, preheat and heat interpass temperatures. The QA inspector witnessed the root pass welding. The QA inspector performed random verifications of the welding parameters for the root pass. The QA inspector found that the welding parameters reported by Certified Welding Inspector with the Technical department Huang Wei appeared to be accurate and in accordance with the contract documents. ABF representative QA Inspector Kevin Dye was presented during the testing.

However, the QA inspector observed that Mr. Zhu was performing the root pass welding extinguishing the arc intermittently approximately every 3 or 4 seconds and re-starting again. The QA inspector had a conversation with ABF QA inspector Kevin Dye. The QA inspector brought to the attention of Mr. Dye that Mr. Zhu was breaking the arc intermittently. The QA inspector asked Mr. Dye if ABF agreed to use that technique for welding low hydrogen E-7018-H4 electrodes. Mr. Dye relayed to the QA inspector that he was going to inquire if ABF agreed with ZPMC on using this welding technique. The QA inspector had a conversation with Caltrans Task Leader Dave McClary. The QA inspector brought to the attention of Mr. McClary that ZPMC was extinguishing the arc intermittently to weld the root pass. Mr. McClary relayed to the QA inspector that he was going to have a

conversation with ABF representatives. After Mr. Dye and Mr. McClary conversations with ABF representatives, Mr. Dye and Mr. McClary relayed to the QA inspector that ABF had rejected the root pass from the test coupon PQR HP2007149-1 because ZPMC performed welding operations on the root pass extinguishing the arc and re-starting welding again. Mr. Dye added that the breaking the arc technique would not be accepted SAS project. The QA inspector had a conversation with Mr. Huang. Mr. Huang relayed to the QA inspector that lower hydrogen H4 electrodes were difficult to weld and ZPMC believed that the reason of the PQR HP2007149 cracked at the root pass was that ZPMC weld the root pass with the weaving technique which used relatively lower amparages in compared with the breaking the arc technique. The QA inspector recommended Mr. Huang to address this issue with ABF welding Engineer. The digital photograph below shows Mr. Zhu welding the root pass and Mr. Dye video recording Mr. Zhu's welding technique. The photo on the right side shows the PQR HP2007149 root pass after completion.



Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Acuna,Alfredo	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer